

**WHAT IS CLAIMED IS:**

1. A method for providing a plurality of fire pulses in an ink jet printer, comprising the steps of:

producing a plurality of fire signals, each fire signal of said plurality of fire signals being asserted at a different timing than other of said plurality of fire signals;

5 and

combining said plurality of fire signals to form a composite fire signal that maintains said different timing.

2. The method of claim 1, further including the step of decoding said composite fire signal thereby producing a plurality of decoded fire signals.

3. The method of claim 2, further including the step of energizing a plurality of actuators using said plurality of decoded fire signals.

4. The method of claim 3, wherein said plurality of decoded fire signals is associated with a plurality of ink colors.

5. The method of claim 1, wherein each of said plurality of fire signals includes a prefire signal and mainfire signal.

6. The method of claim 1, wherein said combining step includes at least one of said plurality of fire signals interlaced with another of said plurality of fire signals.

7. An ink jet printer, comprising:

a printhead carrier; and

a controller communicatively coupled to said printhead carrier for producing a plurality of fire signals, each fire signal of said plurality of fire signals being asserted at a different timing than other of said plurality of fire signals, said controller combining said plurality of fire signals to form a composite fire signal that maintains said different timing.

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8. The ink jet printer of claim 7, further including a printhead mounted to

said printhead carrier and thereby communicatively coupled to said controller, said printhead including a plurality of nozzles for ejecting ink, a plurality of actuators associated with said plurality of nozzles, an actuator firing logic circuit connected to  
5 said plurality of actuators for selectively energizing said plurality of actuators, and a decoder circuit connected to said actuator firing logic circuit, said decoder circuit including at least one input for receiving said composite fire signal.

9. The ink jet printer of claim 8, wherein said decoder circuit decodes said composite fire signal into a plurality of actuator fire signals.

10. The ink jet printer of claim 8, further including a printhead cartridge connected to said printhead carrier and thereby communicatively coupled to said controller, said printhead being integral with said printhead cartridge.

11. The ink jet printer of claim 7, wherein said controller forms a plurality of composite fire signals, each including a corresponding plurality of fire signals.

12. The ink jet printer of claim 11, wherein said plurality of composite fire signals is associated with a plurality of ink colors.

13. The ink jet printer of claim 7, wherein each of said plurality of fire signals includes a prefire signal and mainfire signal.

14. The ink jet printer of claim 7, wherein said composite fire signal includes a plurality of actuator fire signals, at least one said plurality of actuator fire signals interlaced with an other said plurality of actuator fire signals.

15. The ink jet printer of claim 7, wherein said composite fire signal includes a plurality of actuator fire signals.

16. The ink jet printer of claim 7, wherein said plurality of fire signals is specific to a particular color.

17. The ink jet printer of claim 16, wherein said composite fire signal is specific to said particular color.

18. A printhead cartridge for an ink jet printer, comprising:  
at least one ink reservoir; and  
a printhead fluidly coupled to said at least one ink reservoir, said printhead including:

5                   a plurality of nozzles for ejecting ink;  
                  a plurality of actuators associated with said plurality of nozzles;  
                  an actuator firing logic circuit in communication with said plurality of  
actuators for selectively energizing said plurality of actuators; and  
                  a decoder circuit in communication with said actuator firing logic  
10 circuit, said decoder circuit including at least one input for receiving at least one  
composite fire signal.

19. The printhead cartridge of claim 18, wherein said decoder circuit decodes each said composite fire signal into a plurality of actuator fire signals.

20. The printhead cartridge of claim 18, wherein said at least one composite fire signal includes a plurality of color composite fire signals.

21. The printhead cartridge of claim 20, wherein said plurality of color composite fire signals is associated with a plurality of ink colors.

22. The printhead cartridge of claim 18, wherein each said composite fire signal includes a plurality of actuator fire signals, each actuator fire signal including a prefire signal and mainfire signal.

23. The printhead cartridge of claim 18, wherein each said composite fire signal includes a plurality of actuator fire signals, at least one said plurality of actuator fire signals interlaced with an other said plurality of actuator fire signals.

24. A printhead for an ink jet printer, comprising:

a plurality of nozzles for ejecting ink;  
a plurality of actuators associated with said plurality of nozzles;  
an actuator firing logic circuit in communication with said plurality of  
5 actuators for selectively energizing said plurality of actuators; and  
a decoder circuit in communication with said actuator firing logic circuit, said  
decoder circuit including at least one input for receiving at least one composite fire  
signal.

25. The printhead of claim 24, wherein said decoder circuit decodes each said  
composite fire signal into a plurality of actuator fire signals.

26. The printhead of claim 24, wherein said at least one composite fire signal  
includes a plurality of color composite fire signals.

27. The printhead of claim 26, wherein said plurality of color composite fire  
signals is associated with a plurality of ink colors.

28. The printhead of claim 24, wherein each said composite fire signal  
includes a plurality of actuator fire signals, each actuator fire signal including a prefire  
signal and mainfire signal.

29. The printhead of claim 24, wherein each said composite fire signal  
includes a plurality of actuator fire signals, at least one said plurality of actuator fire  
signals interlaced with an other said plurality of actuator fire signals.

30. A method for providing a plurality of fire pulses in an ink jet printer,  
comprising the step of producing a plurality of fire signals specific to a particular  
color, each fire signal of said plurality of fire signals being asserted at a different  
timing than other of said plurality of fire signals.

31. The method of claim 30, further including the step of combining said  
plurality of fire signals to form a composite fire signal that maintains said different  
timing.

32. The method of claim 31, wherein said composite fire signal is specific to a particular color.